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ARTICLE

Digital Transformation in the Local Tax System

Does It Strengthen Key Factors of Tax Compliance?

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Abstract: The contribution of local taxes to the subnational government budget was minimal. The average local tax ratio in Indonesia is only 1,21%. Consequently, subnational governments remain highly dependent on transfers from the central government. Therefore, understanding the factors that influence tax compliance is essential for easing the central government's budget constraints and strengthening local government self-reliance. This study examines the relationship between tax morale, tax awareness, and tax service quality in shaping tax compliance in Jakarta Province. In addition, this study explores how digital transformation affects the relationship between these factors and tax compliance. The research methodology is quantitative, where the Partially Least Square-Structured Equation Model (PLS-SEM) is employed. The data was collected through questionnaires on land and building tax at UPPD Kelapa Gading, a local tax office in Jakarta. Using convenience sampling, we obtained 188 valid respondents for analysis. The finding concluded that tax morale and tax service quality positively affect the taxpayer. On the other hand, tax awareness has no significant effect on tax compliance. Meanwhile, the implementation of information technology to streamline the business process was effective in improving the relationship between tax awareness and tax service quality to tax compliance but has minimal effect on tax morale. This finding implies that enhancing tax compliance requires both internal and external perspectives. Meanwhile, solely improving taxpayers' knowledge has a minimal impact. Furthermore, digital transformation effectively enhances external factors, such as tax awareness and tax service quality, by providing taxpayers with easy access to reporting, notification, and paying taxes.

Keywords: Digital Transformation; Tax Morale; Tax Awareness; Tax Service Quality; Tax Compliance; Subnational Government; Local Taxes; Land and Building Tax.

1. Introduction

The effectiveness of tax collection, by both the Central Government and Subnational Governments, can be reflected in the level of Tax Compliance (Kapon et al., 2024). A country's Tax Compliance can be measured through the tax ratio (Akitoby et al., 2020). In the last three years, the Directorate General of Taxes (DGT) has succeeded in meeting its revenue targets in the last three years. However, this achievement does not reflect the real conditions of tax compliance in Indonesia. This can be seen in Indonesia's tax ratio which is only 10.21% in 2023, down from 10.41% in 2022 and even 10.24% in 2018 (DDTC News, 2024).

Compared to ASEAN countries, Indonesia is ranked 7th, which is only better than Laos (9.46%), Myanmar (5.75%), and Brunei Darussalam (1.3%). Indonesia is far behind neighboring countries such as Thailand (17.2%), Vietnam (16.2%), and Malaysia (11.4%) (MIB Group, 2022). Likewise, Indonesia's tax ratio is compared to the average of Asian countries of 19.3% and countries that are members of the OECD of 34%. In fact, compared to the average of African countries alone, Indonesia is far behind by 16.

Table 1. Local Tax Ratio in Java Island from 2019 – 2023

No.	Local Government	2019	2019	2019	2019	2019
1	West Java	2.28%	2.04%	2.20%	2.39%	2.41%
2	Banten	2.03%	1.81%	1.95%	2.11%	2.08%
3	Central Java	1.29%	1.22%	1.22%	1.32%	1.28%
4	Jakarta	1.43%	1.15%	1.19%	1.26%	1.26%
5	East Java	1.09%	1.01%	1.03%	1.06%	1.04%

Source: *Directorate of Fiscal Balance, Ministry of Finance (2025)*

Meanwhile, the average local government tax ratio is around 1.21%, no more than one-tenth of the national tax ratio (Directorate of Fiscal Balance, 2023). The contribution of local taxes to local revenue in Indonesia is very low (Saptono & Mahmud, 2023). Consequently, subnational governments remain highly dependent on transfers from the central government. The same situation also occurred in the DKI Jakarta Regional Government. In 2023, according to the Directorate of Fiscal Balance data, the tax ratio in the Indonesian capital was only 1.26% of the total potential tax that could be collected. Yet, Jakarta is an economic hub with significant tax revenue potential. This indicates that there is still a need to increase the effectiveness of the DKI Jakarta Regional Government's tax revenue.

Jakarta is implementing digital transformation through the implementation of Tax Notification Letter of Land and Building Tax. Since 2021, Governor Bill Number 23/2021, all tax services have been carried out through pajakonline.jakarta.go.id. This digital transportation is important since land and building tax is a major revenue for Jakarta Province, approximately IDR 9.8 trillion or 17% of total revenue as of December 2024 (Indonesian Audit Agency, 2023). However, the DKI Jakarta Regional Government's Land and Building Tax has never reached its target, either before or after the transformation. Finally, the amount of Land and Building Tax revenue only reached 93% of the Local Budget target. For this reason, in-depth research is needed regarding this problem.

Until now, studies on tax compliance have focused mainly on central government tax, while subnational government tax has received less attention. Meanwhile, since the Indonesian decentralization reform in 1999, subnational governments have been required to fulfill their own financial needs. In addition, studies examining the moderating impact of digital transformation on subnational tax systems are very limited.

To better understand taxpayer behavior in these underexplored contexts, behavioral frameworks such as the Theory of Planned Behavior (TPB) offer valuable insights. TPB assumes that behavior is influenced by three main determinants: attitude toward a behavior, subjective norms, and perceived behavioral control (Ajzen, 1991). Attitude toward behavior means that someone always evaluates whether a behavior is acceptable or not. Subjective norms are a person's perception of behavior as acceptable to those around them or not. Perception of control over behavior means the extent to which a person can carry out behavior by considering the resources and obstacles that will occur. In its development, the Theory of Planned Behavior is also used in analyzing tax compliance behavior.

Within this framework, tax compliance can be understood as the implementation of all tax rights and obligations properly and on time in accordance with laws and regulations (Ibrahim & Morasa, 2023). Tax compliance can be assessed in two main aspects, namely formal compliance and material compliance. Formal compliance is the fulfillment of administrative obligations such as the accuracy of reporting (Jupri & Sarno, 2020). Meanwhile, material compliance is related to the accuracy of the amount of tax paid [12]. An approach that combines aspects of law enforcement and behavior has been shown to increase overall tax compliance (Alm et al., 2023). This is in line with the Theory of Planned Behavior (Prinz et al., 2014).

In particular, one factor closely aligned with TPB's components, especially attitudes and subjective norms, is Tax Morale. Tax Morale reflects an individual's internalized sense of moral responsibility toward contributing to public goods and services (Scarpa & Signori, 2023). Tax morale is influenced by a person's ethical and moral values (Mazurenko et al., 2021). A person's level of Tax Morale is measured by how they perceive the fairness of a tax system (Macei & Oliveira, 2019). In addition, tax morale is also related to how Taxpayers believe in the tax system (Ciziceno, 2024). Other factors include transparency and public participation in the decision-making process (Gribnau & Jallai, 2017).

Recent studies have investigated the influence of tax morale on tax compliance. Abu Bakar et al. (2022) found that Tax Morale has a significant effect on Tax Compliance in Malaysia. Kunia & Amalia (2023) strengthened the findings in Regional Taxes in Makassar, Indonesia. Bulutoding et al. (2020) found that Tax Morale has no significant effect on Muslim Taxpayers in Malaysia. The findings of Susanto et al. (2022) also support this where Tax Morale has no significant effect on MSME tax compliance in West Nusa Tenggara, Indonesia. While many studies examine tax morale in the context of central taxation, contradictions in the findings remain. Thus, the first of the hypotheses of this study is as follows:

H1: Tax Morale Has a Positive and Significant Effect on Tax Compliance

While tax morale emphasizes internalized values and ethical responsibility, other psychological factors such as tax awareness also play a crucial role in shaping taxpayer behavior. Tax awareness refers to behavior or attitude toward an object that involves assumptions, feelings, and a tendency to act toward the object (Zhong et al., 2021). Taxpayers' assessment of the benefits and disadvantages of paying their taxes is indicated by their assessment of the risks associated with paying and not paying taxes (Kumala Dewi, 2022). The existence of tax sanctions will make Taxpayers think twice because when they fail to pay or report taxes correctly, they can be subject to fines, interest, or even more serious legal action, such as tax audits by tax authorities (Alm & Torgler, 2011).

Anggadini et al. (2022) found that Tax Awareness has a significant effect on Tax Compliance. These results are supported by Sarpong et al. (2024) who found something similar finding. At the Provincial Tax level, Gaol et al. (2023) found that Tax Awareness has a significant effect on Motor Vehicle Tax compliance. Meanwhile, Wahyuni et al. (2023) found that Tax Awareness has no effect on Motor Vehicle Tax Compliance. A similar thing was found by Putri (2020) who found that Tax Awareness has no significant effect on tax compliance in Cirebon City, Indonesia. Some studies have explored tax awareness in the local tax context, but contradictory findings still exist. So, the second hypothesis of this study is as follows:

H2: Tax Awareness Has a Positive and Significant Effect on Tax Compliance

In addition to individual psychological factors, external service-related variables such as the quality of tax services also influence compliance. Tax service quality refers to the taxpayer's perception of the service provided (Lailiyah & Br Sebayang, 2020). Tax service quality is measured by comparing the quality of service requested by customers with the quality of service they perceive (Ajibie et al., 2018). The indicator measurements can be in the form of Service Reliability (Vossler & McKee, 2017), Tax Officer Responsiveness (Nyantakyi et al., 2024), and Information Disclosure (Saptono et al., 2023). These things are currently believed to be able to be improved by implementing information technology in the form of Digital Transformation. Tax Notification Letter of Land and Building Tax in DKI Jakarta, for example, adopts services from the registration process to payment by Taxpayers through one application.

Rahmah et al. (2021) found that Tax Service Quality has a significant effect on Tax Compliance. Putra et al. (2023), Nguyen (2022), and Rahiem & Ardillah (2022) found similar findings. A study by Safitri & Umaimah (2022) also supports these findings. On the other hand, research by Dharmayanti (2023) found that Tax Service Quality has no effect on Tax Compliance. This finding is supported by Tawfik & Elmaasrawy (2024) who found similar results. Although many studies have examined the impact of tax services on tax compliance, the findings remain contradictory. Thus, the third hypothesis of this study is as follows:

H3: Tax Service Quality Has a Positive and Significant Effect on Tax Compliance

Given these mixed findings, researchers have increasingly considered the role of contextual and technological factors, particularly Digital Transformation, in shaping and possibly strengthening the relationship between key variables and tax compliance. Digital Transformation is the process of implementing a tax reporting system from paper to digital filing format (Plekhanov et al., 2023). The success of implementing technology in public services is influenced by two main factors: Perceived Usefulness and Perceived Ease of Use (Nazarov et al., 2020). In addition, an intuitive and easy-to-use system design will accelerate adoption and increase user satisfaction (ElMassah & Mohieldin, 2020). The security of the e-SPPT system is also an important aspect in ensuring user trust in digital-based tax services (Kuhlmann & Heuberger, 2023).

Digital transformation is believed to enhance the impact of various determinants influencing tax compliance. Belahouaoui & Attak (2024) found that Digital Transformation moderates Trust towards Tax Compliance. Shubailat et al. (2024) found that Digital Transformation increases Tax Compliance by increasing efficiency. Meiryani et al. (2021) found that Digital Transformation strengthens the relationship between Individuals with high Tax Morale and Tax Compliance. On the other hand, Puholovko (2024) found that Digital Transformation is not significant in influencing Tax Compliance. In line with that finding, Boy Sinaga et al. (2023) found that Digital Transformation in the tax system does not significantly strengthen the factors of tax compliance. Research on the moderating effect of digital transformation remains limited, particularly in the context of local taxation. Thus, the fourth, fifth, and sixth hypotheses of this study are as follows:

H4: Digital Transformation Strengthen the Effect of Tax Morale on Tax Compliance

H5: Digital Transformation Strengthen the Effect of Tax Awareness on Tax Compliance

H6: Digitalization Transformation Strengthen the Effect of Tax Service Quality on Tax

2. Methods

This study uses a quantitative research method. The population of this study was PBB-P2 Taxpayers registered at the UPPPD in Kelapa Gading District, DKI Jakarta, totaling 57,102 Taxpayers. The dependent variable in this study is Tax Compliance. The independent variables in this study include 1) Tax Morale (X1), 2) Tax Awareness (X2), and 3) Tax Service Quality (X3). The moderating variable in this study is Digital Transformation, which is a proxy for the implementation of information technology in Land and Building Tax in DKI Jakarta through Tax Notification Letter of Land and Building Tax.

Data collection with online questionnaires with the sampling technique that will be used is convenience sampling. The criteria for respondents used for the sample are:

a. Land and Building Tax Taxpayers registered at the UPPPD Kelapa Gading District
b. Using the e-SPPT-Land and Building Tax Service.
c. Active in PBB-P2 Payments in the last 5 years.

The data analysis used is Partial Least Squares Structural Equation Modeling (PLS-SEM). PLS-SEM is used in this study because it is well-suited for social science research where theories often involve multiple interconnected factors. PLS-SEM can be used effectively with smaller sample sizes which is advantageous when collecting data can be challenging in social science research. It is designed to predict outcomes, making it useful for exploring how variables relate to and influence factors. PLS-SEM is considered more robust than other methods like SPSS.

3. Results and Discussion

3.1. Result

The Model Specification of this Research is depicted in Figure 1.

Data analysis with PLS-SEM consists of three stages. First, descriptive statistical analysis with SPSS 26. Next, PLS-SEM analysis is carried out in the form of a model evaluation (Outer Model), consisting of convergent Validity, Discriminant Validity, and Composite Reliability. Finally, PLS-SEM analysis is carried out in the form of a structural evaluation (Inner Model), consisting of the coefficient of determination, effect size, and path analysis. Meanwhile, descriptive statistics are explained in Table 2.

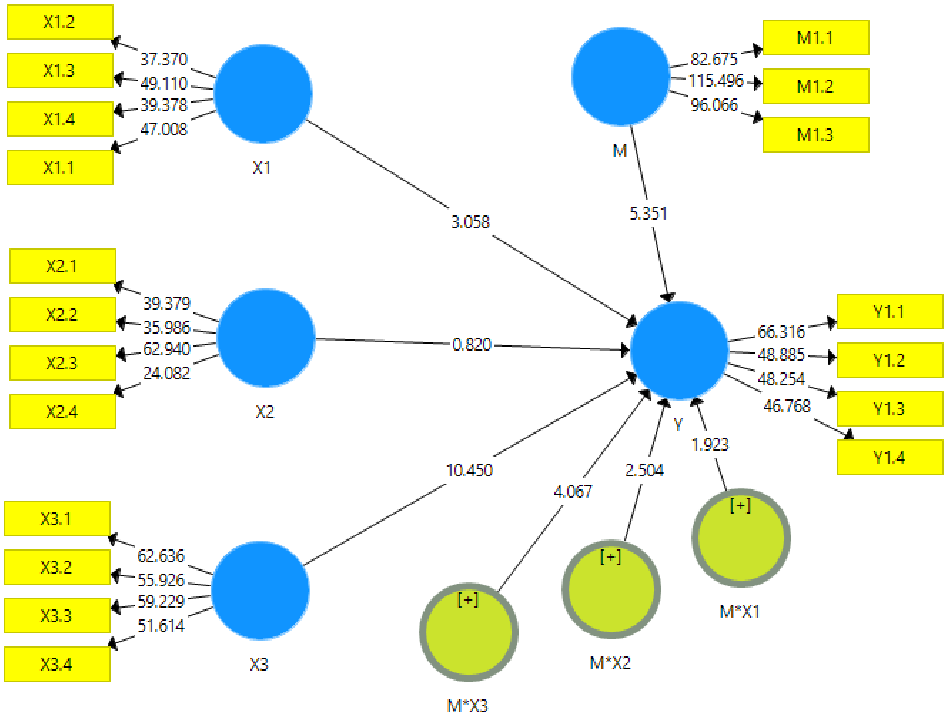

Figure 1. Model Specification

Table 2. Descriptive Statistics

No.	Variable	Total	Percent
1	Gender		
	Man	121	64,4%
	Woman	67	35,6%
2	Age		
	<25 Years old	7	3,7%
	25 – 35 Years old	41	21,8%
	35 – 45 Years old	76	40,4%
	45 – 55 Years old	35	18,6%
	> 55 Years old	29	15,4%
3	Education Level		
	Middle School	2	1,1%
	High School	45	23,9%
	Diplome Degree	21	11,2%
	Undergraduate Degree	90	47,9%
	Graduate Degree	30	16,0%

3.1.1. Instrument Evaluation (Outer Model)

Based on the results of the Convergent Validity test with the AVE Value test, it is known that the results for all variable constructs are greater than 0.5. This is reinforced by the factor loading value > 0.7. Therefore, it can be concluded that the indicator has a good Convergent Validity value.

Table 3. Average Variance Extracted (AVE)

Variable	Average Variance Extracted (AVE)
Tax Morale	0.787
Tax Awareness	0.794
Tax Service Quality	0.850
Digital Transformation	0.905
Tax Compliance	0.851

The next step is to Test Discriminant Validity. It conducted to determine whether the indicators in a construct are not correlated with indicators in other constructs (Hair et al., 2019). A PLS-SEM Model has adequate discriminant validity if the root of its AVE for each construct variable is greater than the correlation with other constructs (Hair et al., 2017). The test results show that the root value of AVE of each construct variable has a greater value than other constructs, so it is concluded that the model in this study has met the Discriminant Validity test.

Table 4. Results of Discriminant Validity Test (Root AVE)

	Tax Morale	Tax Awareness	Tax Quality Service	Digital Transformation	Tax Compliance
Tax Morale	0.887				
Tax Awareness	0.730	0.891			
Tax Service Quality	0.747	0.651	0.922		
Digital Transformation	0.717	0.624	0.874	0.952	
Tax Compliance	0.770	0.703	0.920	0.886	0.922

A research model with Cronbach's Alpha and Internal Consistency values for each construct variable if the value is > 0.7 can be said to be reliable (Night & Bananuka, 2020). The results of the Composite Reliability test of this research model with SmartPLS 3 can be presented in the following Table 5.

Table 5. Composite Reliability

Variable	Composite Reliability	Cronbach's Alpha
Tax Morale	0.937	0.787
Tax Awareness	0.939	0.794
Tax Service Quality	0.958	0.850
Digital Transformation	0.966	0.905
Tax Compliance	0.958	0.851

Based on Table 5, it can be seen that the Cronbach's Alpha and Internal Consistency values of each construct variable are > 0.7. Therefore, it can be concluded that this study has a reliable model. Thus, it can be concluded that the five variables in this study have reliable reliability and meet the Composite Reliability test.

3.1.2. Structural Model Evaluation (Inner Model)

Based on the results of SmartPLS 3, it is known that the R-squared value is 0.919. In other words, the independent variable can explain 91.9% of the dependent variable, while the remaining 8.1% is explained by other variables or constructs that are not hypothesized in this study. Meanwhile, the Effect Size (F-squared) test shows that Tax Morale, Tax Service Quality, and Digital Transformation have a significant effect. On the other hand, Tax Awareness and Digital Transformation moderation on the influence of Tax Morale have minimal/no effect.

Table 6. Effect Size (F-Square)

	Tax Compliance (Y)
Tax Morale (X1)	0.052
Tax Awareness (X2)	0.004
Tax Service Quality (X3)	0.890
Digital Transformation (M)	0.277
M*X1	0.034
M*X2	0.081
M*X3	0.206

3.1.3. Hypotheses Testing

Path Analysis test shows that Tax Morale and Tax Service Quality have a significant effect on Tax Compliance with p-values <0.05. In addition, Digital Transformation strengthens the influence of Tax Awareness and Tax Service Quality on Tax Compliance with p-values <0.05. In this study, the Tax Awareness Variable does not have a significant effect and Digital Transformation cannot strengthen the influence of Tax Morale on Tax Compliance, indicated by p-values> 0.05.

Table 7. Path Coefficient

	Original Sampel	Sampel Mean	Std. Dev.	t-Statistic	p-Values
X1 → Y	0.117	0.126	0.038	3.058	0.002*
X2 → Y	-0.033	-0.038	0.041	0.820	0.413
X3 → Y	0.713	0.718	0.068	10.450	0.000*
X1*M → Y	-0.119	-0.125	0.062	1.923	0.055
X2*M → Y	-0.106	-0.100	0.042	2.504	0.013*
X3*M → Y	0.248	0.258	0.061	4.067	0.000*

3.2. Discussion

3.2.1. The Influence of Tax Morale on Tax Compliance

The positive and significant influence of tax morale is that when taxpayers believe that paying taxes is part of their social responsibility, they are more motivated to comply (Robbins & Kiser, 2020). In addition, the belief that tax revenues are used transparently and fairly strengthens taxpayers' moral commitment to comply with their obligations. The results of this study within the framework of the Theory of Planned Behavior (TPB) are associated with the dimension of attitudes toward behavior (Cahyonowati et al., 2022). High morality reflects a positive attitude of taxpayers towards tax obligations because they view taxes as a contribution to society (Kirchler, 2007; Torgler & Schneider, 2005).

The implication of this finding is that regional tax authorities should not only rely on the aspect of law enforcement alone, but also integrate efforts to improve moral values by increasing transparency, fairness, and public trust. Socialization of ethical values in paying taxes can be an effective tool to strengthen social norms that support compliance.

The practice of strengthening the morality aspect to improve tax compliance has begun to be common. In Australia, the Australian Tax Authority (ATO) introduced the term "Your Tax Matters" (Gillitzer & Sinning, 2020). The ATO has encouraged the implementation of communication to the public that emphasizes transparency and accountability in the use of tax revenues for infrastructure development and public services. Through this initiative, taxpayers are given clear information about the benefits of their tax contributions. As a result, public trust and a sense of social responsibility are expected to increase.

The results of this study are supported by several previous studies. Tambun & Haryati (2022) found that tax morale, as an internal norm reflecting social responsibility, significantly increases voluntary compliance. Davidescu et al. (2022) also found that tax morale influences taxpayer behavior by strengthening the perception that tax is a noble obligation. In line with this, Abu Bakar et al. (2022) and Kunia & Amalia (2023) also support this finding by concluding that high tax morale encourages taxpayers to be more compliant in fulfilling tax obligations.

3.2.2. The Influence of Tax Awareness on Tax Compliance

The insignificance of Tax Awareness on Tax Compliance in this study is because taxpayers' knowledge and understanding of tax obligations, although important, are not always enough to encourage compliant behavior. Taxpayers may know the tax regulations, but other factors such as moral motivation, trust in the government, and perceptions of the fairness of the tax system can have a greater influence on the decision to behave compliantly (Davidescu et al., 2022).

The results of this study indicate that increasing tax knowledge or awareness alone is not enough to trigger changes in compliance behavior. According to the Theory of Planned Behavior, subjective norms and perceptions of control play a role in taxpayers' intentions and behavior (Taing & Chang, 2021). Even though taxpayers have understood the tax regulations, they may not show compliant behavior if they are not supported by perceptions of fairness, ease of access to services, and trust in the government (Trifan et al., 2023).

Alternative policies to strengthen the influence of Tax Awareness are carried out in several countries. South Korea also implemented the Digital Public Engagement Program by the National Tax Service. Since 2022, the South Korean National Tax Service (NTS) has been carrying out digital-based innovations that include webinars, interactive forums, and reporting applications to increase public participation. This program is designed so that taxpayers not only understand their tax obligations through digital education but also actively participate in monitoring the use of tax funds (Kim et al., 2022).

The results of this study are supported by several previous studies which show that tax awareness does not always have a significant effect on tax compliance. Wahyuni et al. (2023) and Putri (2020) found that tax awareness was not significant for tax compliance due to other factors, such as taxpayers' perceptions of the fairness of the tax system and economic conditions. In addition, Youde & Lim (2019) research in Cambodia also showed that tax awareness has a limited effect, especially if taxpayers face accessibility barriers and low trust in the government.

3.2.3. The Influence of Tax Service Quality on Tax Compliance

This study found that high-quality tax services have a significant effect on tax compliance. Tax authorities should make improving service quality a top priority in their policies. Policies such as implementing information technology to simplify service procedures, regular training for tax officers to improve communication and problem-solving skills, and implementing feedback (Sajuyigbe et al., 2023). These effects will allow taxpayers to submit suggestions and criticisms directly.

Tax Service Quality in the Theory of Planned Behavior is related to the perceived behavioral control dimension (Hou et al., 2021). According to Saptono et al. (2023), taxpayers' perceptions of the ease or difficulty in carrying out tax obligations will affect their intention to comply with tax regulations. When the quality of tax services is high, such as responsiveness in responding to complaints and reliability in delivering information, taxpayers have a higher perception of control over the tax process.

Good tax service practices have been identified by the OECD in various tax authorities. In its 2023 Report entitled Tax Administration 2023, the OECD (2022) identified three trends in improving tax services globally. First, implementing 24/7 tax services. It is found that tax authorities are continuously striving to improve their responsive processes, whether online, face-to-face, or by phone, to make it easier for taxpayers to contact tax administration. For example, more than 60% of tax authorities worldwide have provided virtual or digital assistants to help respond to taxpayer inquiries and support self-service. This is an increase of almost 30 percent compared to 2018.

Second, tax services using digital identity and verification. As tax authorities increase the delivery of digital services, the importance of digital verification and digital identity is also increasing. Tax authorities are leveraging their expertise and data sets to not only provide taxpayers with access to tax administration services but also to broader government systems.

Third, decentralization of tax administration services is carried out. Embedding services and processes into the natural systems used by taxpayers in their daily lives and businesses is a growing trend among tax authorities. One form of this is by providing access to the internal tax administration system through application programming interfaces (APIs).

This research is supported by several previous studies. Rahmah et al. (2021) stated that service quality that meets or exceeds taxpayer expectations supports tax compliance. Saptono et al. (2023) also found that services that provide certainty, comfort, and a sense of security encourage taxpayers to carry out their obligations. A study by Putra et al. (2023), Nguyen (2022), and Rahiem & Ardillah (2022) found that the competence of tax officers in providing responsive and reliable services is one of the motivations for taxpayers in carrying out their tax obligations.

3.2.4. The Moderation Effect of Digital Transformation

The Moderation Effect of Tax Digitalization on Tax Morale, Tax Awareness, and Tax Quality Service has different impacts. For Tax Awareness and Tax Quality Services, the implementation of Digital Transformation in the tax system is able to strengthen the influence of both variables on tax compliance. Meanwhile, Digital Transformation cannot significantly increase the influence of Tax Morale on tax compliance.

The findings in this study are in line with the OECD report on Tax Administration 3.0 which found that digitalization of the tax system provides wider access and convenience in managing tax obligations. Puholovko (2024) also shows that digitalization reduces administrative barriers, such as the complexity of manual procedures, thereby helping taxpayers implement their knowledge and understanding of taxation. Similar findings were found by Lucas-Mas & Junquera-Varela (2021) where digitalization increases trust in the tax system by simplifying the process.

In addition, Digital Transformation also strengthens the significance of the influence of Tax Quality Services. This is because digital procedures, such as the implementation of the Tax Notification Letter of Land and Building Tax, enable faster, more accurate, and more consistent services, thereby strengthening taxpayers' perceptions that services are reliable and responsive to their needs. In addition, digitalization reduces compliance costs, such as time and effort spent, such as visiting and queuing at regional tax service units. Digitalization of the tax system also brings services from Tax Officers closer to Taxpayers, for example by providing real-time notifications, especially in the Tax Notification Letter of Land and Building Tax system in the DKI Jakarta Regional Government (Zulfiqar et al., 2025)].

The results of this study are supported by various previous studies. Research by Belahouaoui & Attak (2024) shows that digitalization of the tax system can improve the service process, although the impact can vary depending on the implementation. Meanwhile, Abrori et al. (2023) found that digitalization simplifies tax service procedures, especially during the COVID-19 pandemic, making it easier for taxpayers to carry out their tax obligations. In line with this, the OECD Report on Tax Administration

3.0 noted that digitalization of the tax system, namely through automated systems such as VAT integration and electronic reporting, increases service efficiency while encouraging taxpayer compliance.

Finally, the insignificant moderating effect of Digital Transformation on Tax Morale is because Digital Transformation aims to facilitate access and increase transparency, but if taxpayers do not understand or trust the system, the moderating impact becomes ineffective. In addition, tax morale as an internal norm is more influenced by individual values (Hauptman & Hlastec, 2023). This results in tax compliance not necessarily increasing just because a technology platform is provided to improve tax morale. Tax morality is related to a person's intrinsic factors. Thus, according to the OECD (2022), although digitalization can increase transparency and fairness, the results still depend on the acceptance of technology by taxpayers. Thus, this finding also supports the notion that the impact of digital transformation can vary depending on technological readiness and taxpayer perceptions of the digital tax system (Lee et al., 2024).

4. Conclusion

Based on the results of data testing and discussion from the previous section, it can be concluded that Tax Morale and Tax Service Quality are significant factors in influencing taxpayer compliance. Meanwhile, Tax Awareness does not have a significant effect on tax compliance. In addition, Digital Transformation can strengthen the influence of Tax Service Quality and Tax Awareness, but cannot strengthen the influence of morality on tax compliance.

The results of this study contribute to the literature, especially related to revealing the moderating effect of tax digitalization on several factors that tax compliance, such as Tax Morale and Tax Service Quality. In addition, this study also reveals how Digital Transformation can affect factors that influence regional tax compliance. In practice, one alternative policy that can be implemented by the Regional Government to increase its tax ratio is through digitalization, such as the Tax Notification Letter of Land and Building Tax.

However, this study has limitations. This study is only limited to Land and Building Tax Taxpayers registered with the Kelapa Gading UPPPD, which only covers one regional tax office. In addition, the variables studied are limited to only three variables, namely Tax Morale, Tax Awareness, and Level of Tax Service Quality. Further research can use a wider sample to increase the generalization of the research results. In addition, further research can use Taxpayers with other regional tax objects, for example, Motor Vehicle Tax or Certain Goods and Services Tax, and the influence of regulations on digitalization policies that have been implemented to expand the scope of the research.

References

Abrori, M. A., Utaminingtyas, T. H., & Zakaria, A. (2023). Fenomena kepatuhan pajak sistem self-assessment selama pandemi COVID-19 di UPPPD Kecamatan Taman Sari. *AKURASI: Jurnal Riset Akuntansi Dan Keuangan, 5*(3), 315–328. https://doi.org/10.36407/akurasi.v5i3.1070

Abu Bakar, M. A. A., Palil, M. R., Maelah, R., & Ali, M. H. (2022). Power of Tax Authorities, Tax Morale, and Tax Compliance: A Mediation Analysis in East Malaysia. *Asian Journal of Business and Accounting, 15*(2), 281–309. https://doi.org/10.22452/ajba.vol15no2.10

Ajibie, D., Juhar, N., & Baysasah, A. (2018). Assessment of Taxpayer's Expectation and Perception of Service Quality in Some Selected Woredas 'of North Shewa Zone, Ethiopia. *Siddhant- A Journal of Decision Making, 18*(1), 1. https://doi.org/10.5958/2231-0657.2018.00001.0

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2).

Akims, M. A. (2023). Tax Education and Tax Compliance: A Review of Literature. *Journal of Economics, 7*(1), 51–63. https://doi.org/10.53819/81018102t4235

Akitoby, B., Baum, A., Hackney, C., Harrison, O., Primus, K., & Salins, V. (2020). Tax revenue mobilization episodes in developing countries. *Policy Design and Practice, 3*(1), 1–29. https://doi.org/10.1080/25741292.2019.1685729

Alm, J., Burgstaller, L., Domi, A., März, A., & Kasper, M. (2023). Nudges, Boosts, and Sludge: Using New Behavioral Approaches to Improve Tax Compliance. *Economies, 11*(9), 223. https://doi.org/10.3390/economies11090223

Alm, J., & Torgler, B. (2011). Do ethics matter? Tax compliance and morality. *Journal of Business Ethics, 101*(4).

Anggadini, S. D., Surtikanti, S., Bramasto, A., & Fahrana, E. (2022). Determination of Individual Taxpayer Compliance in Indonesia: A Case Study. *Journal of Eastern European and Central Asian Research (JEECAR), 9*(1), 129–137. https://doi.org/10.15549/jeecar.v9i1.883

Bajrami, E. (2021). Recognition of Taxes and Implementation of Tax Procedures by SMEs in Albania. *Contemporary Economics, 15*(2), 224–239. https://doi.org/10.5709/ce.1897-9254.445

Belahouaoui, R., & Attak, E. H. (2024). Digital taxation, artificial intelligence and Tax Administration 3.0: improving tax compliance behavior – a systematic literature review using textometry (2016–2023). *Accounting Research Journal, 37*(2), 172–191. https://doi.org/10.1108/ARJ-12-2023-0372

Boy Sinaga, M., Bulan Siregar, N., & Fachrudin, K. A. (2023). Factors that Influence SMEs Taxpayer Compliance with Digitalization of Tax Services as a Moderating Variable at KPP Pratama Medan Belawan. *International Journal of Research and Review, 10*(12), 213–228. https://doi.org/10.52403/ijrr.20231226

Bulutoding, L., Habbe, Abd. H., Parmitasari, R. D. A., Alwi, Z., & Abdullah, M. W. (2020). Moslem Taxpayers' compliance behavior in Malaysia. *International Journal of Advanced Engineering Research and Science, 7*(3), 214–224. https://doi.org/10.22161/ijaers.73.35

Cahyonowati, N., Ratmono, D., & Juliarto, A. (2022). The Moderating Role of Social Norms on Tax Compliance Model: A Laboratory Experimental Evidence in Indonesia. *Contemporary Economics, 16*(4), 410–423. https://doi.org/10.5709/ce.1897-9254.491

Ciziceno, M. (2024). What shapes tax morality in younger generations? A comparative analysis between Gen Y and Gen Z. *Sociology Compass, 18*(2). https://doi.org/10.1111/soc4.13179

Davidescu, A. A., Manta, E. M., Stoica-Ungureanu, A. T., & Anton (Musat), M. (2022). Could Religiosity and Religion Influence the Tax Morale of Individuals? An Empirical Analysis Based on Variable Selection Methods. *Mathematics, 10*(23), 4497. https://doi.org/10.3390/math10234497

DDTC News. (2024). *Lebih Rendah dari Rata-Rata Asia, OECD Catat Tax Ratio RI 12,1 Persen*. Lebih Rendah Dari Rata-Rata Asia, OECD Catat Tax Ratio RI 12,1 Persen. https://news.ddtc.co.id/berita/nasional/1803549/lebih-rendah-dari-rata-rata-asia-oecd-catat-tax-ratio-ri-121-persen

DeLone, W. H., & McLean, E. R. (2016). Information Systems Success Measurement. *Foundations and Trends® in Information Systems, 2*(1), 1–116. https://doi.org/10.1561/2900000005

Dharmayanti, N. (2023). The Effect of Tax Office Service Quality and Taxpayer Income on Land and Building Tax Compliance. *JAK (Jurnal Akuntansi) Kajian Ilmiah Akuntansi, 10*(1), 48–64. https://doi.org/10.30656/jak.v10i1.4927

Directorate of Fiscal Balance. (2023). *Directorate Fiscal Balance on Local Tax Performance Report for the year 2023*.

ElMassah, S., & Mohieldin, M. (2020). Digital transformation and localizing the Sustainable Development Goals (SDGs). *Ecological Economics, 169*, 106490. https://doi.org/10.1016/j.ecolecon.2019.106490

Gaol, D. L., Purwoko, A., & Revida, E. (2023). Faktor-Faktor yang Mempengaruhi Kepatuhan Wajib Pajak Kendaraan Bermotor di Samsat Medan Selatan. *Journal on Education, 5*(4), 11083–11097. https://doi.org/10.31004/joe.v5i4.2033

Gillitzer, C., & Sinning, M. (2020). Nudging businesses to pay their taxes: Does timing matter? *Journal of Economic Behavior & Organization, 169*, 284–300. https://doi.org/10.1016/j.jebo.2019.11.020

Gribnau, H. J. L. M., & Jallai, A.-G. (2017). Good Tax Governance: A Matter of Moral Responsibility and Transparency. *Nordic Tax Journal, 2017*(1), 70–88. https://doi.org/10.1515/ntaxj-2017-0005

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2019). *Partial Least Squares Structural Equation Modeling*. Springer.

Hauptman, L., & Hlastec, A. (2023). Exploring the relationship between individual tax culture and Schwartz's higher-order personal values among accountants as taxpayers in Slovenia. *Problems and Perspectives in Management, 21*(3), 714–725. https://doi.org/10.21511/ppm.21(3).2023.55

Hou, Z., Liang, L. J., Meng, B., & Choi, H. C. (2021). The Role of Perceived Quality on High-Speed Railway Tourists' Behavioral Intention: An Application of the Extended Theory of Planned Behavior. *Sustainability, 13*(22), 12386. *https://doi.org/10.3390/su132212386*

Ibrahim, L., & Morasa, J. (2023). Compliance Analysis of Taxable Entrepreneurs in Manado City. *Journal of Governance, Taxation and Auditing, 1*(4), 455–461. https://doi.org/10.38142/jogta.v1i4.662

Indonesian Audit Agency. (2023). *Jakarta Province land and building tax revenue report*.

Jupri, M., & Sarno, R. (2020). Data mining, fuzzy AHP and TOPSIS for optimizing taxpayer supervision. *Indonesian Journal of Electrical Engineering and Computer Science, 18*(1), 75. https://doi.org/10.11591/ijeecs.v18.i1.pp75-87

Kapon, S., Del Carpio, L., & Chassang, S. (2024). Using Divide-and-Conquer to Improve Tax Collection. *The Quarterly Journal of Economics, 139*(4), 2475–2523. https://doi.org/10.1093/qje/qjae018

Khozen, I., & Setyowati, M. S. (2023). Managing taxpayer compliance: Reflections on the drivers of willingness to pay taxes in times of crisis. *Cogent Business & Management, 10*(2). https://doi.org/10.1080/23311975.2023.2218176

Kim, C. J., Hendriyetty, N., Taghizadeh-Hesary, F., & Evans, C. (2022). Taxation in the Digital Economy. In *Taxation in the Digital Economy*. Routledge. https://doi.org/10.4324/9781003196020

Kirchler, E. (2007). *The economic psychology of tax behaviour*. Cambridge University Press.

Kuhlmann, S., & Heuberger, M. (2023). Digital transformation going local: implementation, impacts and constraints from a German perspective. *Public Money & Management, 43*(2), 147–155. https://doi.org/10.1080/09540962.2021.1939584

Kumala Dewi, D. (2022). The Effect of Socialization, Taxpayer Awareness and Tax Morale on Taxpayer Compliance (Study on Smes Benai District Kuantan Singingi Regency). *International Journal of Educational Research & Social Sciences, 3*(4), 1808–1816. https://doi.org/10.51601/ijersc.v3i4.476

Kunia, & Amalia, L. (2023). The influence of tax morale on local tax compliance in Makassar. *Journal of Regional Taxation*.

Lailiyah, N., & Br Sebayang, L. K. (2020). Effectiveness of E-Billing System in Tax Payments for Taxpayers. *Economics Development Analysis Journal, 8*(4), 267–280. https://doi.org/10.15294/edaj.v8i4.35266

Lee, E. Y., Leeroy, G. C., & Leeroy, W. (2024). Impact of Blockchain on Improving Taxpayers' Compliance: Empirical Evidence from Panel Data Model and Agent-Based Simulation. *Journal of Emerging Technologies in Accounting, 21*(1), 89–109. https://doi.org/10.2308/JETA-2022-046

Lucas-Mas, C. Ó., & Junquera-Varela, R. F. (2021). *Tax theory applied to the digital economy: A proposal for a digital data tax and global internet agency*. World Bank.

Macei, D. N., & Oliveira, F. C. (2019). The principle of morality (administrative, tax and "public") in the Brazilian Federal Constitution of 1988. *Revista Justiça Do Direito, 32*(3), 509–527. https://doi.org/10.5335/rjd.v32i3.8911

Mazurenko, O., Tiutiunyk, I., & Derkach, L. (2021). The Impact of Tax Morality on Tax Evasion: Evidence of EU Countries. *Business Ethics and Leadership, 5*(3). https://doi.org/10.21272/bel.5(3).108-112.2021

Meiryani, M., Fernando, E., Dewiyanti, S., Angelus, M., & Haliyanti, I. (2021). The Effect of Covid-19 on Regional Revenue of DKI Jakarta Province, Indonesia. *2021 2nd International Conference on Internet and E-Business*, 122–128. https://doi.org/10.1145/3471988.3472009

MIB Group. (2022). *Lihat perbandingan tax ratio Indonesia per tahun dan antarnegara ASEAN lainnya*. Lihat Perbandingan Tax Ratio Indonesia per Tahun Dan Antarnegara ASEAN Lainnya. https://www.mib.group/news/lihat-perbandingan-tax-ratio-indonesia-per-tahun-dan-antarnegara-asean-lainnya

Nazarov, M. A., Mikhaleva, O. L., & Chernousova, K. S. (2020). *Digital Transformation of Tax Administration* (pp. 144–149). https://doi.org/10.1007/978-3-030-27015-5_18

Nguyen, T. H. (2022). The Impact of Non-Economic Factors on Voluntary Tax Compliance Behavior: A Case Study of Small and Medium Enterprises in Vietnam. *Economies, 10*(8), 179. https://doi.org/10.3390/economies10080179

Night, S., & Bananuka, J. (2020). The mediating role of adoption of an electronic tax system in the relationship between attitude towards electronic tax system and tax compliance. *Journal of Economics, Finance and Administrative Science, 25*(49), 73–88. https://doi.org/10.1108/JEFAS-07-2018-0066

Nyantakyi, G., Sarpong, F. A., Asiedu, F., Adjei Bimpeh, D., Kwasi Anenyah Ntoso, J., & Ofeibea Nunoo, L. (2024). Unearthing the mediating role of political affiliation in tax compliance determinants: new evidence from Ghana. *Cogent Business & Management, 11*(1). https://doi.org/10.1080/23311975.2024.2316886

OECD. (2022). *Tax administration 3.0 & electronic invoicing*.

Plekhanov, D., Franke, H., & Netland, T. H. (2023). Digital transformation: A review and research agenda. *European Management Journal, 41*(6), 821–844. https://doi.org/10.1016/j.emj.2022.09.007

Prinz, A., Muehlbacher, S., & Kirchler, E. (2014). The slippery slope framework on tax compliance: An attempt to formalization. *Journal of Economic Psychology, 40*, 20–34. https://doi.org/10.1016/j.joep.2013.04.004

Puholovko, I. (2024). ALTERNATIVE WAYS TO MANAGE COOPERATION IN TAX RELATIONS: CHALLENGES OF DIGITALIZATION AND TAX COMPLIANCE. *Economies' Horizons, 2-3(28)*, 214–220. https://doi.org/10.31499/2616-5236.3(28).2024.310211

Putra, L. A., Loist, C., Butarbutar, N., Efendi, E., & Sudirman, A. (2023). The Influence of Service Quality and Tax Sanctions on Taxpayer Compliance. *International Journal of Business, Law, and Education, 4*(2), 952–959. https://doi.org/10.56442/ijble.v4i2.268

Putri, T. E. (2020). The Effect Of Tax Awareness, Quality Of Service Tax Officers And Tax Socialization To Compliance Taxpayers Pp 23 Year 2018 Concering Tax Payers That Have Certain Bruto Circulars With The Perception Of Tax Justice As Variable Pemoderation. *JRAK: Jurnal Riset Akuntansi Dan Komputerisasi Akuntansi, 11*(1), 66–98. https://doi.org/10.33558/jrak.v11i1.1886

Rahiem, C., & Ardillah, K. (2022). Tax Awareness, Tax Services Quality, and Tax Sanctions on Individual Taxpayer Compliance. *The Accounting Journal of Binaniaga, 7*(1), 1–16. https://doi.org/10.33062/ajb.v7i1.489

Rahmah, R., T, S., & Baridwan, Z. (2021). Quality Services Moderation on Moral Impact of Taxpayers and Tax Penalties on Compliance Taxpayers. *ATESTASI : Jurnal Ilmiah Akuntansi, 4*(2), 145–153. https://doi.org/10.33096/atestasi.v4i2.762

Robbins, B., & Kiser, E. (2020). State coercion, moral attitudes, and tax compliance: Evidence from a national factorial survey experiment of income tax evasion. *Social Science Research, 91*, 102448. https://doi.org/10.1016/j.ssresearch.2020.102448

Safitri, A., & Umaimah, U. (2022). The Influence of E-Filing Implementation,Service Quality and Tax Knowledge on Individual Taxpayer Compliance. *INNOVATION RESEARCH JOURNAL, 3*(2), 139. https://doi.org/10.30587/innovation.v3i2.4723

Sajuyigbe, A. S., Amusat, A. W., & Fadahunsi, A. C. (2023). IMPROVING INCOME GENERATION IN OSUN STATE, NIGERIA: THE IMPORTANCE OF TRAINING TAX PERSONNEL FOR REVENUE ENHANCEMENT. *Journal of Business And Entrepreneurship, 11*(2), 175–189. https://doi.org/10.46273/ahz5p350

Saptono, P. B., Hodžić, S., Khozen, I., Mahmud, G., Pratiwi, I., Purwanto, D., Aditama, M. A., Haq, N., & Khodijah, S. (2023). Quality of E-Tax System and Tax Compliance Intention: The Mediating Role of User Satisfaction. *Informatics, 10*(1), 22. https://doi.org/10.3390/informatics10010022

Saptono, P. B., & Mahmud, G. (2023). Stimulus or Enforcement? How Intergovernmental Transfers Crowd-in Local Taxes in Indonesia. *Public Finance Review, 51*(6), 782–837. https://doi.org/10.1177/10911421231191961

Sarpong, S. A., Yeboah, M., Oware, K. M., & Danquah, B. A. (2024). Effect of Taxpayer Knowledge and Taxation Socialization on Taxpayer Compliance: The Mediating Role of Taxpayer Awareness. *WSEAS TRANSACTIONS ON BUSINESS AND ECONOMICS, 21*, 1217–1227. https://doi.org/10.37394/23207.2024.21.99

Scarpa, F., & Signori, S. (2023). Understanding corporate tax responsibility: a systematic literature review. Sustainability Accounting, *Management and Policy Journal, 14*(7), 179–201. https://doi.org/10.1108/SAMPJ-04-2022-0200

Shubailat, O. M., Al-Zaqeba, M. A. A., Madi, A., & Khairi, K. F. (2024). Investigation the effect of digital taxation and digital accounting on customs efficiency and port sustainability. *International Journal of Data and Network Science, 8*(1), 61–68. https://doi.org/10.5267/j.ijdns.2023.10.017

Susanto, F., Pituringsih, E., & Sakti, D. P. B. (2022). Determinan Tax Compliance dengan Moral Wajib Pajak UMKM sebagai Variabel Moderasi. *E-Jurnal Akuntansi, 32*(10), 3098. https://doi.org/10.24843/EJA.2022.v32.i10.p14

Taing, H. B., & Chang, Y. (2021). Determinants of Tax Compliance Intention: Focus on the Theory of Planned Behavior. *International Journal of Public Administration, 44*(1), 62–73. https://doi.org/10.1080/01900692.2020.1728313

Tambun, S., & Haryati, A. (2022). The Influence of Nationalism's Attitude and Tax Morals on Taxpayer Compliance through Tax Awareness. *Journal of Accounting, Business and Finance Research, 14*(1), 1. https://doi.org/10.20448/2002.141.1.7

Tawfik, O. I., & Elmaasrawy, H. E. (2024). Determinants of the Quality of Tax Audits for Content Creation Tax and Tax Compliance: Evidence From Egypt. *Sage Open, 14*(1). https://doi.org/10.1177/21582440241227755

Torgler, B., & Schneider, F. (2005). *Shadow economy, tax morale, governance, and institutional quality: A panel analysis* (CESifo Working Paper Series No. 1923).

Trifan, V. A., Szentesi, S. G., Cuc, L. D., & Pantea, M. F. (2023). Assessing Tax Compliance Behavior Among Romanian Taxpayers: An Empirical Case Study. *Sage Open, 13*(3). https://doi.org/10.1177/21582440231195676

Vossler, C. A., & McKee, M. (2017). EFFICIENT TAX REPORTING: THE EFFECTS OF TAXPAYER LIABILITY INFORMATION SERVICES. *Economic Inquiry, 55*(2), 920–940. https://doi.org/10.1111/ecin.12425

Wahyuni, A., Nugroho, M., & Murwato, O. (2023). Analyzing Factors Affects Taxpayer Compliance: The Role of Theory of Planned Behavior, Demographic and Psychographic Variables in Banjarmasin, Indonesia. *International Journal of Professional Business Review, 8*(5), e01941. https://doi.org/10.26668/businessreview/2023.v8i5.1941

Wang, Y.-S., & Liao, Y.-W. (2008). Assessing eGovernment systems success: A validation of the DeLone and McLean model of information systems success. *Government Information Quarterly, 25*(4), 717–733. https://doi.org/10.1016/j.giq.2007.06.002

Youde, S., & Lim, S. (2019). The Determinants of Medium Taxpayers' Compliance Perspectives: Empirical Evidence from Siem Reap Province, Cambodia. *International Journal of Public Administration, 42*(14), 1222–1233. https://doi.org/10.1080/01900692.2019.1591447

Zhong, J., Zheng, Y., Huang, X., Mo, D., Gong, J., Li, M., & Huang, J. (2021). Study of the Influencing Factors of Cyberbullying Among Chinese College Students Incorporated With Digital Citizenship: From the Perspective of Individual Students. *Frontiers in Psychology, 12*. https://doi.org/10.3389/fpsyg.2021.621418

Zulfiqar, F. L., Prasetia, T., & Ulupui, G. K. A. (2025). Tax Incentives and Social Spending Amidst COVID-19: A VECM Analysis in a Subnational Government (case of Jakarta province, Indonesia). *Journal of Tax Reform, 11*(1), 243–260. https://doi.org/10.15826/jtr.2025.11.1.200